

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/827,088
Inventor(s) : Kuang-Kai Liu
Filed : April 19, 2004
Art Unit : 3761
Examiner : Benedict L. Hanrahan
Docket No. : 9606
Confirmation No. : 1872
Customer No. : 27752
Title : Disposable Absorbent Articles Having Wetness Appearing Graphics

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

This Brief is filed pursuant to the appeal from the decision communicated in the Office Action mailed on December 23, 2009.

A timely Notice of Appeal was filed on March 23, 2010, making this Brief due on or before May 24, 2010 (as May 23, 2010 falls on a Sunday).

REAL PARTY IN INTEREST

The real party in interest is The Procter & Gamble Company of Cincinnati, Ohio.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals, interferences, or judicial proceedings.

STATUS OF CLAIMS

Claims 1-16 are rejected.

Claims 1-16 are appealed.

A complete copy of the appealed claims is set forth in the Claims Appendix attached herein.

STATUS OF AMENDMENTS

No amendments have been filed after the present Office Action.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1 is generally directed to a disposable absorbent article comprising: (a) a liquid pervious topsheet [16]; (b) a liquid impervious backsheet [24] that is at least partially joined to the topsheet; (c) an absorbent core [22] disposed at least partially between the topsheet and the backsheet; and (d) a wetness indicator [28] printed onto a surface of the backsheet (page 2, lines 1-10 of the specification, as originally filed). The wetness indicator comprises a graphic that further comprises at least one hydrolyzable color composition and a varnish coating disposed adjacent to the hydrolyzable color composition; the graphic being invisible to the unaided eye; and furthermore, wherein upon wetting, the hydrolyzable color composition undergoes a hydrolytic reaction resulting in the invisible graphic becoming visible to the unaided eye (page 11, lines 6-12; page 11, line 28 to page 12, line 1-2 (i.e. the figure showing a chemical reaction)). Independent Claim 11 is generally related to a method of printing such a wetness indicator onto an absorbent article. Independent Claim 14 is generally directed to a disposable absorbent article similar to that of Claim 1, comprising an additional varnish coating (page 12, lines 23-24).

GROUND S OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are submitted for consideration on Appeal by the Board:

- I. Rejection of Claims 1, 2 and 8 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz and Townsend is erroneous.
- II. Rejection of Claim 3 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend and Timmons is erroneous.
- III. Rejection of Claims 4 and 5 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz, Townsend and Schleinz is erroneous.
- IV. Rejection of Claim 6 under 35 U.S.C. §103(a) as unpatentable over Castello, Raykovitz, Townsend and Ito is erroneous.
- V. Rejection of Claims 7 and 11 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz, Townsend and Olson is erroneous.
- VI. Rejection of Claims 9 and 10 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz, Townsend and Polansky is erroneous.
- VII. Rejection of Claim 13 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz, Townsend and Perrault is erroneous.
- VIII. Rejection of Claims 14 and 16 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz, Townsend and Howell is erroneous.
- IX. Rejection of Claims 12 and 15 under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz, Townsend, Howell and Pierce is erroneous.

ARGUMENTS

I. Claims 1, 2 and 8 are patentable over Castello, Raykovitz and Townsend because these references do not teach or suggest all of the claim limitations.

Claims 1, 2 and 8 have been rejected under 35 USC §103(a) as allegedly being unpatentable over Castello (US 4,931,051) in view of Raykovitz (US 5,342,861) and

Towsend (US 4,287,153). This rejection is respectfully traversed by Applicants since the combination does not establish a *prima facie* case of obviousness because it does not teach or suggest all of the claim limitations of independent claim 1. Therefore, the rejection should be withdrawn.

The Office Action asserts that Castello teaches a diaper having a backsheet (190), a topsheet (170) and an absorbent core (180). The Office Action further asserts that Castello teaches a color wetness indicator printed onto a surface of a backsheet of the diaper (col 2, lines 30-62) and a coating or varnish over the wetness indicator to prevent premature activation (col. 5, lines 14-21).

The Office Action concedes that Castello fails to teach that the color wetness indicator is hydrolyzable (emphasis added). The Office Action asserts that Castello describes that a color can become visible after reacting with water (col. 4, lines 32-35), which allegedly means that the color was invisible to the unaided eye before reacting with water; however, Applicants respectfully disagree. The passage cited by the Office Action indicates that the “blue color becomes apparent due to a shift in bond energy [in a certain wavelength range]”. However, the blue color being referred to in the cited passage is the “second color” of the wetness indicator, i.e. the color shown after the indicator is wetted. Castello teaches that “[w]hen the indicator becomes wet, or attains a hydrated condition, the hydratable salt cause the wetness indicator to exhibit a second color which is substantially in contrast to the first color” (col. 1, lines 58-62). Castello goes on to say that, in a preferred embodiment, the color change is from “white to a very distinct bright azure blue color” (col. 1, lines 66-68). As such, Applicants submit that Castello also fails to teach a wetness indicator “wherein upon wetting, said hydrolyzable color composition undergoes a hydrolytic reaction resulting in said invisible graphic becoming visible to the unaided eye” (emphasis added), as required by Applicant’s claims.

The Office Action relies on Raykovitz as disclosing an absorbent article having, among other things, a wetness indicating agent that is substantially invisible in the dry

composition but becomes a vivid color when wet. The Office Action also asserts that Townsend teaches an absorbent article having, among other things, water indicating graphics that undergo a hydrolytic reaction in response to urine or saline water. The Office Action concludes that it would have been obvious to one of ordinary skill in the art to substitute the graphics compositions of Raykovitz and Townsend for use as the wetness indicator material in the articles of Castello in order to provide a material that is known to be effective for that use and which lacks the toxicity of some hydratable salts.

Independent claim 1 recites a wetness indicator comprising a hydrolyzable color composition. That is, the color composition of claim 1 changes color as the result of hydrolysis, i.e. the chemical process of splitting water into proton and hydroxide (water enters the reaction and becomes part of the end products). As a result, the color composition undergoes a chemical reaction so that the graphic changes from invisible to visible to the unaided eye, i.e. the graphic appears. This is an important difference because hydration is usually reversible, while hydrolysis is not reversible.

Castello's failure to teach or suggest "a wetness indicator comprising a graphic that further comprises at least one hydrolyzable color composition... wherein upon wetting, said hydrolyzable color composition undergoes a hydrolytic reaction resulting in said invisible graphic becoming visible to the unaided eye" is not remedied by Raykovitz or Townsend. Raykovitz is directed to a hot melt wetness indicator (pH indicator) that undergoes a color change. However, similar to Castello, the color change is the result of hydration. Irrespective of these teachings, however, the reference fails to teach or suggest a graphic, like Applicant's color composition, that changes from invisible to visible as the result of hydrolysis. There is no mention or teaching by Raykovitz of a wetness indicating agent that undergoes hydrolysis in order to form a graphic that "appears" upon wetting.

Townsend is generally directed to a disposable absorbent article comprising, among other things, a saline water indicator material comprised of a water insoluble polymeric ion exchanger and a water insoluble polymeric exchanged-ion indicator in intimate contact with

each other (Abstract). Irrespective of these teachings, however, the reference fails to teach or suggest a graphic, like Applicant's color composition, that changes from invisible to visible as the result of hydrolysis. The Office Action asserts that Townsend teaches a hydrolytic reaction in response to urine or saline water, however, Applicants respectfully disagree. Townsend teaches a ion exchange reaction, where "the mechanism of color change is as follows: ions in the aqueous bodily excretions react with the insoluble polymeric ion exchange material to cause the release of either hydrogen ions (a cation exchanger) or hydroxyl ions (an anion exchanger) (col. 4, lines 24-28). Such a reaction is one where, e.g. "upon exposure to hydrogen ions, released by the ion exchanger having contacted sodium ions in urine, the substrate bound acid-base indicator would [change color]" (col. 12, lines 41-43). In contrast, Applicants require hydrolysis, i.e. where water molecules are reacted with the compound of interest and water is conserved in the reaction, i.e. it becomes part of the reaction product, not where ions are being exchanged between the indicator and the bodily fluid.

References relied upon to support a rejection under 35 U.S.C. 103(a) must provide an enabling disclosure, i.e., they must place the claimed invention in the possession of the public. *In re Payne*, 203 U.S.P.Q. 245 (CCPA 1979). Because the cited combination fails to teach all of the claim limitations of claim 1, the Office Action has not established a *prima facie* case of obviousness and has not placed the presently claimed article in the possession of the public. Since claims 2 and 8 depend directly from claim 1, the cited combination also fails to teach all of their claim limitations. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988). Therefore, Applicants assert that claims 1, 2 and 8 are nonobvious over the cited combination and are in condition for allowance.

II. Claim 3 is patentable over Castello, Raykovitz, Townsend and Timmons because these reference do not teach or suggest all of the claim limitations.

Claim 3 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Timmons et al (US 4,022,211). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Timmons. While Timmons teaches the use of alcohol as a solvent, Applicant finds no teaching by Timmons of a disposable absorbent article as defined by claim 1 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible. Since claim 3 depends indirectly from claim 1, the cited combination also fails to teach all of its claim limitations. *In re Fine*, supra. Therefore, Applicant asserts that claim 3 is nonobvious over the cited combination and is in condition for allowance.

III. Claims 4 and 5 are patentable over Castello, Raykovitz, Townsend and Schleinz because these reference do not teach or suggest all of the claim limitations.

Claims 4 and 5 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Schleinz et al (US 5458590). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Schleinz et al. While Schleinz et al teaches an ink blend comprising n-propyl acetate, Applicant finds no teaching by Schleinz et al of a disposable absorbent article as defined by claim 1 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible. Since claims 4 and 5 depend indirectly from claim 1, the cited combination also fails to teach all of their claim limitations. *In re Fine*, supra. Therefore, Applicant asserts that claims 4 and 5 are nonobvious over the cited combination and are in condition for allowance.

IV. Claim 6 is patentable over Castello, Raykovitz, Townsend and Ito because these reference do not teach or suggest all of the claim limitations.

Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Ito et al (US 5595754). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Ito et al. While Ito et al teaches absorbent color-changing sheets which use polyamides as resins in an impermeable layer, Applicant finds no teaching by Ito et al of a disposable absorbent article as defined by claim 1 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible. Since claim 6 depends from claim 1, the cited combination also fails to teach all of its claim limitations. *In re Fine*, supra. Therefore, Applicant asserts that claim 6 is nonobvious over the cited combination and is in condition for allowance.

V. Claims 7 and 11 are patentable over Castello, Raykovitz, Townsend and Olson because these reference do not teach or suggest all of the claim limitations.

Claims 7 and 11 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Olson et al (WO 00/76442). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Olson et al. While Olson et al teaches an absorbent article having a changing wetness indicator printed on an inner surface of a backsheet, Applicant finds no teaching by Olson et al of a disposable absorbent article as defined by claim 1 or the method of printing defined by claim 11, and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible. Because the cited combination fails to teach all of the claim limitations of claims 1 and 11, the Office Action has not established

a *prima facie* case of obviousness and has not placed the presently claimed disposable absorbent article or method of printing in the possession of the public. Since claim 7 depends from claim 1, the cited references also fail to teach all of its claim limitations. Therefore, Applicant asserts that claims 7 and 11 are nonobvious over the cited combination and are in condition for allowance.

VI. Claims 9 and 10 are patentable over Castello, Raykovitz, Townsend and Polansky because these reference do not teach or suggest all of the claim limitations.

Claims 9 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend as in view of Polansky, et al. (US 4,249,532; hereinafter “Polansky”). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Polansky. Applicant finds no teaching by Polansky et al of a disposable absorbent article as defined by claim 1 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible. Because the cited combination fails to teach all of the claim limitations of claim 1, the Office Action has not established a *prima facie* case of obviousness and has not placed the presently claimed disposable absorbent article in the possession of the public. Since claims 9 and 10 depend directly or indirectly from claim 1, the cited references also fail to teach all of their claim limitations. Therefore, Applicant asserts that claims 9 and 10 are nonobvious over the cited combination and are in condition for allowance.

VII. Claim 13 is patentable over Castello, Raykovitz, Townsend and Perrault because these reference do not teach or suggest all of the claim limitations.

Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Perrault, et al. (US 4,717,378; hereinafter “Perrault”). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not

resolved by Perrault et al. While Perrault teaches a method for detecting dehydration of a hydrogel which includes using D&C Red #27, Applicant finds no teaching by Perrault of a disposable absorbent article as defined by claim 1 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible, as required by claim 1. Because the cited combination fails to teach all of the claim limitations of claim 1, the Office Action has not established a *prima facie* case of obviousness and has not placed the presently claimed disposable absorbent article in the possession of the public. Since claim 13 depends indirectly from claim 1, the cited references also fail to teach all of its claim limitations. Therefore, Applicant asserts that claim 13 is nonobvious over the cited combination and is in condition for allowance.

VIII. Claims 14 and 16 are patentable over Castello, Raykovitz, Townsend and Howell because these reference do not teach or suggest all of the claim limitations.

Claims 14 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz and Townsend in view of Howell (US 5,389,093). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Howell. While Howell teaches a thermochromatic ink comprising a fatty acid that changes from a solid state to a liquid state when heated, such change effectuating the color change, Applicant finds no teaching by Howell a of a disposable absorbent article as defined by claim 14 containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction forming a carboxylic acid, and resulting in said graphic becoming visible to the unaided eye, i.e. changing from invisible to visible, as required by claims 14 and 16. Thus, the carboxylic acid is formed after wetting. In contrast, Howell teaches an ink that contains a fatty acid both before and after wetting. In other words, the fatty acid is not formed as part of a hydrolytic reaction. Because the cited combination fails to teach all of the claim limitations of claims 1 and 14, the Office Action has not established a *prima facie*

case of obviousness and has not placed the presently claimed disposable absorbent article in the possession of the public. Since claim 16 depends from claim 1, the cited references also fail to teach all of its claim limitations. Therefore, Applicant asserts that claims 14 and 16 are nonobvious over the cited combination and are in condition for allowance.

IX. Claims 12 and 15 are patentable over Castello, Raykovitz, Townsend, Howell and Pierce because these reference do not teach or suggest all of the claim limitations.

Claims 12 and 15 rejected under 35 U.S.C. § 103(a) as being unpatentable over Castello, Raykovitz, Townsend and Howell in view of Pierce, et al. (WO 00/76438). The deficiencies of the Castello, Raykovitz and Townsend references detailed above are not resolved by Pierce et al. While Pierce teaches one or more active graphics that when contacted with fluid appear or fade to match the color of the outer cover, Applicant finds no teaching by Pierce of a disposable absorbent article as defined by claim 1 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction resulting in the graphic becoming visible to the unaided eye, i.e. changing from invisible to visible, as required by claim 1 or as required by claim 14 and containing a wetness indicator comprising a hydrolyzable color composition that undergoes a hydrolytic reaction forming a carboxylic acid, and resulting in said graphic becoming visible to the unaided eye, i.e. changing from invisible to visible, as required by claim 14. Because the cited combination fails to teach all of the claim limitations of claims 1 and 14, the Office Action has not established a *prima facie* case of obviousness and has not placed the presently claimed disposable absorbent article in the possession of the public. Since claim 12 depends from claim 1 and claim 15 depends from claim 14, the cited references also fail to teach all of its claim limitations. Therefore, Applicant asserts that claims 12 and 15 are nonobvious over the cited combination and are in condition for allowance.

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SUMMARY

In view of all of the above, it is respectfully submitted that the rejections of Claims 1-16 are erroneous and should be reversed.

Respectfully submitted,
THE PROCTER & GAMBLE COMPANY

Date: May 24, 2010
Customer No. 27752

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CLAIMS APPENDIX

1. A disposable absorbent article comprising:
 - a) a liquid pervious topsheet;
 - b) a liquid impervious backsheet that is at least partially joined to the topsheet;
 - c) an absorbent core disposed at least partially between the topsheet and the backsheet; and
 - d) a wetness indicator printed onto a surface of said backsheet; the wetness indicator comprising a graphic that further comprises at least one hydrolyzable color composition and a varnish coating disposed adjacent to said hydrolyzable color composition; said graphic being invisible to the unaided eye;wherein upon wetting, said hydrolyzable color composition undergoes a hydrolytic reaction resulting in said invisible graphic becoming visible to the unaided eye.
2. The article of claim 1 wherein the color composition comprises:
 - a) from about 1% to about 10%, by weight of the composition, of fluid dyestuffs; and
 - b) from about 10% to about 99%, by weight of the composition, of a solvent.
3. The article of claim 2 wherein the solvent is a non-aqueous solvent selected from the group consisting of alcohols, acetates, and combinations thereof.
4. The article of claim 3 wherein said alcohol is selected from the group consisting of isopropyl alcohol, n-propyl alcohol, ethanol, methanol, and combinations thereof.
5. The article of claim 3 wherein said acetate is selected from the group consisting of isopropyl acetate, n-propyl acetate, and combinations thereof.

6. The article of claim 1 wherein said varnish coating comprises materials selected from the group consisting of acrylic copolymers, shellac-based acrylic resins, polyamides, and combinations thereof.
7. The article of claim 1 wherein said wetness indicator is printed on an inner surface.
8. The article of claim 1 wherein said varnish coating is disposed over said hydrolysable color composition.
9. The article of claim 1 wherein said varnish coating is disposed beneath said hydrolyzable color composition.
10. The article of claim 8 wherein said varnish coating is further disposed beneath said hydrolyzable color composition.
11. A method of printing a wetness indicator onto an absorbent article:
 - a) providing an absorbent article wherein said article comprises a topsheet, a backsheet and an absorbent core;
 - b) disposing between said backsheet and said absorbent core via printing a wetness indicator onto a surface of said backsheet; the wetness indicator comprising a graphic that further comprises at least one hydrolyzable color composition and a varnish coating disposed adjacent to said hydrolyzable color composition; said graphic being invisible to the unaided eye;wherein upon wetting, said hydrolyzable color composition undergoes a hydrolytic reaction resulting in said invisible graphic becoming visible to the unaided eye.
12. The article of claim 1 wherein the backsheet is either breathable or non-breathable.
13. The article of claim 2 wherein the fluid dyestuff is selected from the group consisting of D&C Red 27, D&C Orange 5 and combinations thereof.

14. A disposable absorbent article comprising:
- a) a liquid pervious topsheet;
 - b) a liquid impervious backsheet that is at least partially joined to the topsheet;
 - c) an absorbent core disposed at least partially between the topsheet and the backsheet; and
 - d) a wetness indicator printed onto a surface of said backsheet; the wetness indicator comprising a graphic that further comprises at least one hydrolyzable color composition; a first varnish coating disposed over said hydrolyzable color composition; and a second varnish coating disposed beneath said hydrolyzable color composition; said graphic being invisible to the unaided eye;
- wherein upon wetting, said hydrolyzable color composition undergoes a hydrolytic reaction forming a carboxylic acid, resulting in said invisible graphic becoming visible to the unaided eye.
15. The article of claim 14 wherein the backsheet is either breathable or non-breathable.
16. The article of claim 1 wherein said chemical reaction forms a carboxylic acid.

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EVIDENCE APPENDIX

None.

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RELATED PROCEEDINGS APPENDIX

None.